INSTRUCTION MANUAL

BatteryMINDer Plus® Model 12117*

Maintenance Charger / Desulphator-Conditioner

12-Volt – 1.3 Amp

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*NOT for use with Aviation Type 12-V Batteries

READ AND SAVE THESE INSTRUCTIONS

Rev. B-032009

P/N VDC 12117 MNL

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Underwriters Laboratories (UL) REQUIRED SAFETY INSTRUCTIONS

WARNING

TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK, OR INJURY TO PERSON, OBSERVE THE FOLLOWING:

This manual contains important safety and operating instructions for battery charger Model 12117.

1. Do not expose charger to rain or snow. It is designed to operate ONLY INDOORS

2. Use of any attachment not specifically recommended by the battery charger manufacturer for use with this exact model of charger may result in risk of fire and electric shock or injury to person.

3. To reduce risk of damage to electric plug and cord, pull by plug rather than cord when disconnecting charger.

4. An extension cord should not be used, unless absolutely necessary. Use of an improper extension cord could result in fire or electric shock. If extension cord must be used be sure:

a) Pins on plug of extension cord are the same number, size, & shape of plug on charger.

b) Extension cord is properly wired and in good electrical condition.

c) Wire size is large enough for AC ampere rating of charge as specified below:

Length of cord, feet (meters)	25 (7.6)	60 (15.2)	100 (30.5)	150 (45.6)
Wire Gauge (Awg)	18	18	18	16

5. Do not operate charger with damaged cord or plug - replace the cord or plug immediately.

6. Do not use charger if it received a sharp blow, been dropped, or damaged in any way, take it to a qualified serviceman.

7. Charger contains no serviceable parts. If it fails for any reason, return to the address shown within for a free replacement under warranty. Incorrect reassembly may result in a risk of electric shock or fire.

8. To reduce risk of electric shock, unplug charger from outlet before attempting any maintenance or cleaning. Turning off controls will not reduce this risk.

9. **WARNING - RISK OF EXPLOSIVE GASES.**

a) **WORKING IN VICINITY OF A LEAD-ACID BATTERY IS DANGEROUS. BATTERIES**

GENERATE EXPLOSIVE GASES DURING NORMAL BATTERY OPERATION. FOR THIS REASON, IT IS OF UTMOST IMPORTANCE THAT EACH TIME BEFORE USING YOUR CHARGER, YOU READ THIS MANUAL AND FOLLOW THE INSTRUCTIONS EXACTLY.

b) To reduce risk of battery explosion, follow these instructions and those published by battery manufacturer and manufacturer of any equipment you intend to use in vicinity of battery. Review the cautionary marking on these products and on engine.

10. **PERSONAL PRECAUTIONS**

When working with/near a lead acid battery.

a) Someone should be in range of your voice or close enough to come to your aid when you work near a lead acid battery.

b) Have plenty of fresh water and soap nearby in case battery acid contact skin, clothing, or eyes.

c) Wear complete eye protection and clothing protection. Avoid touching eyes while working near battery.

d) If battery acid does contact skin or clothing, wash immediately with soap and water. If acid entered the eye, immediately flood the eye with running water for at least 10 minutes and get medical attention immediately.

e) Never smoke or allow a spark of flame near battery or engine.

f) Be extra cautious to reduce risk of dropping a metal tool or auto part onto battery. It might spark or short circuit battery or other electrical part that may cause an explosion.

g) Remove personal metal items such as rings, bracelets, necklaces, and watches when working with a lead acid battery. A lead acid battery can produce a short circuit current high enough to weld a ring or the like to metal, causing a severe burn.

h) Charger is designed to be used for charging lead acid batteries only. Never use it to power a low voltage electrical system other than in a starter-motor application, or for attempting to recharge dry cell batteries that are commonly used in home appliances. These batteries may explode and cause injury to persons and damage property.

i) **NEVER CHARGE A FROZEN BATTERY OR A BATTERY AT A TEMPERATURE ABOVE 123° F.**

11. **PREPARING TO CHARGE**

a) If necessary to remove battery from vehicle to charge, always remove grounded terminal first. Turn off all accessories in the vehicle, so as not to cause an arc.

b) Be sure area around battery is well ventilated while battery is being charged. Gas vapors can be forcefully blown away by using a piece of non-metallic material as a fan.

c) Clean battery terminals. Be careful to keep corrosion from contacting eyes.

d) Add distilled water to each cell until battery acid reaches level specified by the manufacturer. This helps Purge excessive gas from cells. Do not overfill. For a battery with out cell caps, follow manufacturer's recharging instructions.

e) Study all battery manufacturer's specific instructions such as removing or not removing cell caps while charging and recommended charge rates.

f) Determine voltage of battery by referring to car owner's manual and make sure it matches output rating of battery charger.

12. **CHARGER LOCATION**

a) Make sure charger is as far away from battery as output cables permit.

b) Never place charger directly above battery being charged; gases from battery will corrode and damage charger.

c) Never allow battery acid to drip on charger when reading specific gravity or filling battery.

d) Do not operate charger in a closed-in area or restrict ventilation in any way.

e) Do not set battery on top of charger.

13. **DC CONNECTION PRECAUTIONS**

a) Connect and disconnect DC output clips only after removing charger from outlet. Never allow clips to touch each other.

b) Attach clips to battery and chassis as indicated in 14(e), 14(f), 15(b), and 15(d).

c) Attach clips to battery posts and twist or rock back and forth several times to make good contact. This keeps clips from slipping off terminals and reduces risk of sparking.

14. **FOLLOW THESE STEPS WHEN BATTERY IS INSTALLED IN VEHICLE. A SPARK NEAR BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF A SPARK NEAR BATTERY:**

a) Position AC and DC cords to reduce risk of damage by

hood, door, or moving engine part.

b) Stay clear of fan blades, belts, pulleys, and other parts that can cause injury to persons.

c) Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has larger diameter than NEGATIVE (NEG, N,–) post.

d) Determine which post of battery is grounded (connected) to the chassis. If negative post is grounded to chassis (as in most vehicles), see (e). If positive post is grounded to the chassis, see (f).

e) For negative-grounded vehicle, connect POSITIVE (**RED**) clip from battery charger to POSITIVE (POS, P, +) ungrounded post of battery. Connect NEGATIVE (**BLACK**) clip to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gage metal part of the frame or engine block.

f) For positive-grounded vehicle, connect NEGATIVE (**BLACK**) clip from battery charger to NEGATIVE (NEG, N, –) ungrounded post of battery. Connect POSITIVE (**RED**) clip to vehicle chassis or engine block away from battery. Do not connect clip to carburetor, fuel lines, or sheet-metal body parts. Connect to a heavy gage metal part of the frame or engine block.

g) When disconnecting charger, remove charger from AC receptacle, remove clip from vehicle chassis, and then remove clip from battery terminal.

h) See operating instructions for length of charge information.

15. **FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE VEHICLE. A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF A SPARK NEAR BATTERY:**

a) Check polarity of battery posts. POSITIVE (POS, P, +) battery post usually has a larger diameter than NEGATIVE (NEG, N, –) post.

b) Attach at least a 24 inch long 6-gauge (AWG) insulated battery cable to NEGATIVE (NEG, N, –) battery post.

c) Connect POSITIVE (**RED**) charger clip to POSITIVE (POS, P, +) post of battery.

d) Position yourself and free end of cable as far away from battery as possible – then connect NEGATIVE (**BLACK**) charger clip to free end of cable.

e) Do not face battery when making final connection.

f) When disconnecting charger, always do so in reverse

sequence of connecting procedure and break first connection while as far away from battery as practical.

g) A marine (boat) battery must be removed and charged on shore. To charge it onboard requires equipment specially designed for marine use.

QUALIFYING YOUR BATTERY

Preliminary Requirements

NOTE: **The BatteryMINDer Plus has no electrical output unless it is connected to a healthy battery.** Testing the BatteryMINDer Plus with a volt or an amp meter without the unit being connected across a good battery will result in a false reading. If you experience any problems, or are not sure of how to properly use or connect your BatteryMINDer Plus, please e-mail our technical support at: techsupport@vdcelectronics.com or call our toll-free technical support line 800-379-5579 x206 (Eastern Time).

Be certain to leave your phone number with the area code, time zone and the best time to call.

To gain the best result from your new charger and to maximize the life and performance of your batteries we strongly recommend you qualify (test) your batteries before attempting to either charge-maintain or desulfate them. Remember, even if you just purchased a "new" battery it may have been subjected to conditions that have caused "sulfation" such as high temperature storage (>=80°).

NOTE: If your battery is new and you are certain it was not subject to conditions that could have caused sulfation*, even before you purchased it, then you can disregard our recommendations for qualifying / testing your battery, before using the BatteryMINDer Plus.

* Such as high temperature storage (=/> 80°F) and/or allowed to self-discharge to 12.4 Volts or lower.

OPERATING INSTRUCTIONS FOR CHARGE INFORMATION

FOLLOW THESE STEPS WHEN BATTERY IS OUTSIDE OF VEHICLE OR EQUIPMENT.

A SPARK NEAR THE BATTERY MAY CAUSE BATTERY EXPLOSION. TO REDUCE RISK OF A SPARK NEAR BATTERY:

a. Check polarity of battery posts. POSITIVE (POS, P, +) usually has a large diameter than NEGATIVE (NEG, N, -) battery post.

b. Connect (**RED**) charger clip to (POS+) post of battery.

c. Position yourself and free end of cable as far away from battery as possible, then connect NEGATIVE (**BLACK**) charger clip to free end of cable.

d. Do not face battery when making final connections.

e. When disconnecting charger, always do so in reverse sequence of connecting procedure and break first connection while as far away from battery as practical.

Do not attempt to permanently install any charger not specifically designed for permanent installation, especially in a wet / marine environment

CONNECTING THE BatteryMINDer Plus WHEN BATTERIES ARE INSTALLED IN THE EQUIPMENT

Follow these instructions when battery is installed in equipment (vehicle, PWC, boat, tractor, etc.). A spark near battery may cause battery to explode. To reduce risk of a spark near battery:

1. Position DC output cord to reduce risk of damage by hood, door, covers, or moving engine parts.
2. Stay clear of fan blades, belts, pulleys, and other parts that can cause injuries.
3. Check polarity of battery posts. The POSITIVE (POS, P, +) battery post usually has a larger diameter than the NEGATIVE (NEG, N, -) post.
4. Determine which post of battery is grounded (connected) to the chassis of equipment. If the negative post is grounded, see Item N. If the positive post is grounded, see Item P.

N. For negative grounded equipment, connect the POSITIVE (**RED**) clip from the charger to the POSITIVE (POS, P, +) ungrounded post of the battery. Connect the NEGATIVE (**BLACK**) clip to the vehicle chassis or the engine block away from the battery. Do not connect the clip to carburetor, fuel lines, or metal body parts.

P. For positive ground equipment, connect the NEGATIVE (**BLACK**) clip from the charger to the NEGATIVE (NEG, N, -) UNGROUNDED post of the battery. Connect the POSITIVE (**RED**) clip to chassis or engine block away from the battery. Do not connect the clip to carburetor, fuel lines, or sheet metal body parts. Connect to heavy gauge metal part of the frame or engine.

5. When disconnecting the charger, disconnect it from the AC outlet, and then remove the clips from the vehicle chassis, and the battery posts.

CONNECTING THE BatteryMINDer Plus WHEN BATTERIES ARE OUTSIDE OF EQUIPMENT

Follow these steps when battery is outside of vehicle or equipment. A spark near the battery may cause battery explosion. To reduce risk of a spark near battery:

1. Check the polarity of battery posts. The POSITIVE (POS, P, +) battery post usually has a larger diameter than the NEGATIVE (NEG, N, -) battery post.
2. Attach at least a 24 inch long 6-gauge (AG) insulated battery cable to the NEGATIVE (NEG -) battery post.
3. Connect the (**RED**) charger clip to (POS+) the post of the battery.
4. Position yourself and free end of cable as far away from battery as possible, and then connect the NEGATIVE (**BLACK**) charger clip to free end of the cable.
5. Do not face battery when making final connections.
6. When disconnecting the charger, always do so in reverse sequence of the connecting procedure, and break first connection while as far away from battery as is practical.
7. A marine (boat) battery must be removed and charged on shore. To charge it onboard requires equipment specifically designed for marine use.

The BatteryMINDer Plus charges and maintains any size 12-volt car, boat, RV, motorcycle battery without overcharging.

The BatteryMINDer Plus comes complete with a molded ring terminal assembly and insulated battery clips. The ring terminal assembly has a replaceable flat 3 Amp automotive type fuse. Never replace with a higher rated fuse.

GENERAL INFORMATION

The BatteryMINDer Plus charges and maintains any size 12 volt car, boat, RV, motorcycle battery without overcharging.

The BatteryMINDer Plus comes complete with a molded ring terminal assembly and insulated battery clips. The 18-gauge lamp wire for connecting multiple batteries is not provided.

General

The BatteryMINDer Plus Charger/Maintainer/Conditioner Model 12117 is designed to charge and maintain your battery without overcharging it. The unit utilizes patented technology to produce a wide range of high frequency pulses (RFP) designed to dissolve both old and newly formed sulphate. The pulses free the battery from sulphate and extend the life of your battery.

The 12 Volt BatteryMINDer Plus allows you to charge up to 4 batteries (parallel connected for 12 volt, or series connected for 6 volt) at a time. The batteries must be the same type (starter, deep cycle, sealed gel, etc.). Also, the battery voltage (6 volt, 12 volt), the resting voltage (minimum of 11 volts for a 12 volt battery and 5.5 volts for a 6 volt battery), Amp and the condition of the batteries must be the same to charge more than one battery at the same time. See page 17 for more information on parallel and series connections.

Use the BatteryMINDer Plus whenever your battery is not used for 4 days or more. This will prevent new sulphation from taking place and will lead to dramatically increased battery life and performance. Do not remove the BatteryMINDer Plus from your battery unless you place the battery back in service.

Failure to keep the BatteryMINDer Plus connected to your battery at all times that the battery is not in service will affect its performance.

BatteryMINDer Plus SPECIFICATIONS

Input	105-130 Vac 50/60 Hz 0.19A
Output	12 Vdc @ 1.00 Amps
Output	10.5 Vdc @ 1.3 Amps
Charge Voltage	14.0 Vdc
Float Voltage	13.4 Vdc
Desulphation Pulse	1.0A @ 3.26 MHz
Float Current	5 mA - 200 mA
Size/Weight	3-3/4" L x 2-1/2" W x 2-1/4" H / 2.3 lbs
Operating Temperature	0°F - 125°F

TESTING YOUR BATTERY

It is extremely important that you determine the health of your battery before you attempt to recharge and recondition it.

Batteries that have caps for adding distilled water can be tested with a hydrometer or digital voltmeter. Sealed batteries can only be tested with a digital voltmeter.

TESTING WITH DIGITAL VOLTMETER

1. Test the battery. If the voltage is less than 11 volts, charge the battery overnight with a regular charger or with the BatteryMINDer Plus.
2. Do not use or charge the battery for 8 hours.
3. Test the battery with a voltmeter. If the voltage is less than 12.2 volts (25% charge), the battery might have too much sulphation to reach full charge.
4. Connect the BatteryMINDer Plus to the battery.
5. Lightly touch the Desulphation button to start the maintenance / desulphation mode right away.
6. Let the BatteryMINDer Plus desulphate the battery at least a week.
7. Test the battery again with a voltmeter.

NOTE: **The BatteryMINDer Plus has no electrical output unless it is connected to a healthy battery.** Testing the BatteryMINDer Plus with a volt or an Amp meter without the unit being connected across a good battery will result in a false reading. If you experience any problems, or are not sure of how to properly use or connect your BatteryMINDer Plus, please e-mail our technical support at: techsupport@vdcelectronics.com or call our toll-free technical support line 800-379-5579 x206 (Eastern Time). **Be certain to leave your phone number with the area code, time zone and the best time to call.**

TESTING WITH A HYDROMETER

Read the tester instructions carefully for most accurate readings.

1. When using the tester the first time or after a long period of non-use, fill the tester with the battery fluid and let it sit for 1/2 hour. This will soak the balls in order to give you more accurate readings. Failure to do so can lead to false readings indicating a battery in worse condition than it really is.
2. After inserting the tester in a cell, gently tap the tester several times against the inside wall of each cell to dislodge air bubbles that will cause more balls to float than should. Failure to do so can yield false readings that indicate a battery that is not fully desulphated or does not qualify for desulphation.
3. If no balls float in any cell, the cell is considered shorted. This means that your battery is beyond the point of being properly recharged or reconditioned.
4. If each cell floats two or more balls (or 1260 on gauge-type), your battery can be reconditioned.
5. Always rinse the tester with fresh water after every use.
6. Store the tester in the holder to prevent breakage.

Battery Voltage vs. Charge Percentage

Hydrometer Reading on Each Cell	Voltage	Percentage
1.270	12.7 volts	100%
1.250	12.5 volts	75%
1.190	12.3 volts	50%
1.150	12.1 volts	25%
1.120	11.8 volts	0%

OPERATING THE BatteryMINDer Plus

DISPLAY	OPERATING CONDITION
Red Solid Light	The RED indicator lights to show that there is AC power going into the unit.
Green Solid Light	When the unit is attache to your battery, the GREEN solid light lets you know that the unit is charging your battery.
Green Blinking Light	The GREEN blinking light lets you know that it is desulfating your battery. If there is excessive sulfate in your battery, it cannot accept full charge, and the BatteryMINDer Plus does not automatically start desulfating. The voltage in the battery has to go up to 14 volts in order for the unit to automatically start desulfating.

Before you connect the BatteryMINDer Plus to your battery, test the battery for any shorted cells and check the voltage in the battery. The battery must have a minimum resting voltage of 11 volts before the unit will turn on. Resting voltage means that the battery has not been charged or discharged within 8 hours minimum. If you test a battery that has not rested for at least 8 hours, you will get incorrect, inaccurate readings.

1. If the resting voltage is less than 11 volts, use a regular charger to charge the battery to full voltage before connecting the BatteryMINDer Plus to it. See page 13 for more information on testing the battery. See pages 9 & 10 for more information about installing the BatteryMINDer Plus inside or outside of the equipment.

If battery first before you connect it to the BatteryMINDer Plus.

Note: The BatteryMINDer Plus does not turn on if the battery's voltage is lower than 11 volts.

2. Plug the battery clip assembly (supplied) into the mating plug at the end of the BatteryMINDer Plus' output cord, or attach the ring terminal assembly (supplied) to your battery's terminals (**RED** to + and **BLACK** to -). Never use both at a time.

If your batteries are disconnected or removed from your vehicle, you may use a series or a parallel connection depending on the voltage of the batteries. Six (6) volt batteries must be in series.

3. Attach the battery clips to the posts or terminal clamps

of the battery (**RED** to + and **BLACK** to -).

4. The **GREEN** indicator lights when the proper connection is made. The **GREEN** LED is powered by the battery and lights even when the BatteryMINDer Plus is not plugged into an electrical outlet. **Do not leave contacted when power is off.**

5. Plug the BatteryMINDer Plus into an AC electrical outlet as soon as possible after you have made the connection to the battery. Note: The unit will use the power from your battery and drain the battery if you do not plug it into a live electrical outlet.

6. The **RED** LED indicator lights to show there is AC power going into the unit. If the **RED** LED does not come on, check your outlet to make sure it is switched on. The **RED** LED stays on unless the outlet is switched off or the BatteryMINDer Plus has failed.

7. The BatteryMINDer Plus charges your battery to full voltage first before it automatically goes into the maintenance/desulphation mode. The **GREEN** LED stays solid during the charging mode.

8. The **GREEN** LED indicator starts blinking automatically after the BatteryMINDer Plus has charged the battery to full voltage and goes into the maintenance mode. If there is a lot of sulphate in your battery, If it cannot accept a full charge the **GREEN** LED indicator will not start blinking within 72 hours. Press the Maintenance button to manually start the maintenance mode which will also continue the Desulphation Process. Given sufficient time (2 weeks +) additional sulphate will be removed. Retest your battery to determine if it has fully recovered. If not, continue the process or discard battery. Your battery may be defective for reasons other than sulphation.

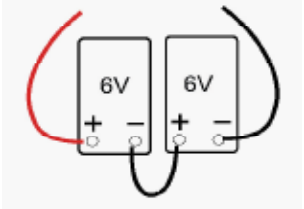
9. Leave the BatteryMINDer Plus connected to your battery at all times when it is not in actual use. You can never over desulphate your battery.

PARALLEL-CONNECTED with a 12 VOLT BatteryMINDer Plus

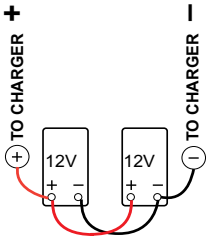
Batteries of the same type only (engine starting, deep cycle, gel) can be maintained at the same time in parallel (+ to +, - to -). When you connect the batteries in parallel, you are keeping the total voltage the same. For example, if you connect two 12 volt batteries in parallel, the voltage of the combination is 12 volts.

When you connect multiple batteries in parallel, connect the + of the first battery to the + of the second battery. Then connect the - of the first battery to the - of the second battery. The + of the first battery and the - of the first battery connect to the BatteryMINDer Plus if possible; otherwise, connect to the accessible battery.

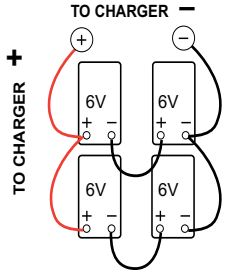
Connect each battery to one another using 18 gauge (lamp cord type) insulated wire. Strip at the points where you wish it to be in electrical contact with the posts of each battery, then use ring or clip connectors. **VDC Electronics, Inc. does not provide any type of wire harness to accomplish this, due to the many variations in size and terminal configuration.**



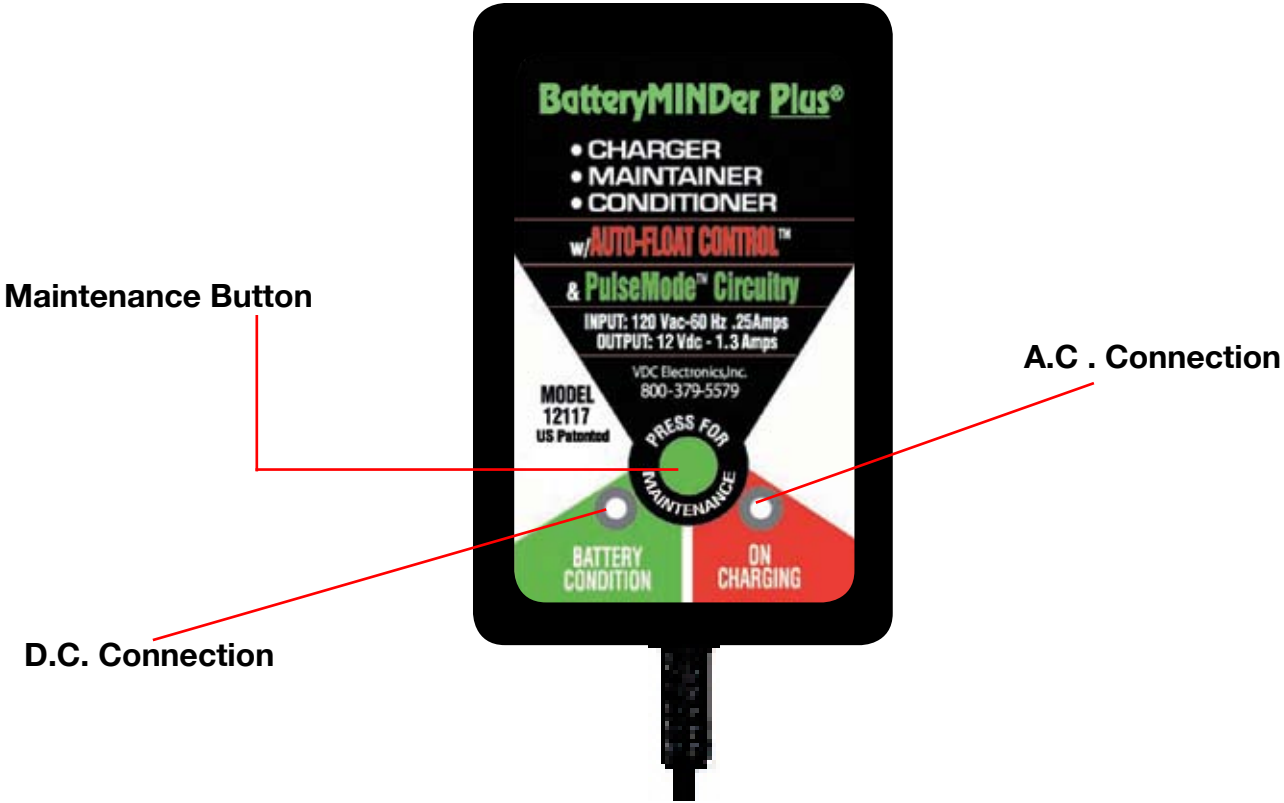
12 VOLT (SERIES)



12 VOLT (PARALLEL)



12 VOLT (SERIES-PARALLEL)
Using 6 Volt Batteries.


Maintenance Button
A.C . Connection
D.C. Connection
BatteryMINDer Plus®
• CHARGER
• MAINTAINER
• CONDITIONER
w/AUTO-FLOAT CONTROL™
& PulseMode™ Circuitry
INPUT: 120 Vac-60 Hz .25Amps
OUTPUT: 12 Vdc - 1.3 Amps
VDC Electronics,Inc.
800-379-5579
MODEL
12117
US Patented
PRESS FOR
MAINTENANCE
BATTERY
CONDITION
ON
CHARGING

SIMPLIFIED OPERATING INSTRUCTIONS

(Read and thoroughly understand ALL SAFETY Instructions (pages 3-7) and

Qualifying Your Battery (page 7), BEFORE proceeding further.

1. Attach battery connector (either clips or ring terminal assembly) to output cordset of charger. Use either type, but not both at the same time.
2. Connect to battery (before plugging unit in 120 Vac electrical outlet) **RED** to + and **BLACK** to -. **GREEN** LED indicator will light.
3. Plug BatteryMINDer Plus into 120 Vac electrical outlet. **RED** LED indicator will light.
4. BatteryMINDer will automatically charge and maintain batter. When in maintenance mode, **GREEN** LED indicator will flash.

TROUBLESHOOTING

Problem	Solution
GREEN LED is not on	If the solid indicator light does not come on, you have not made a proper connection to the battery. The GREEN LED lights up even before you have plugged the unit into an electrical outlet, if you have made the correct connection to the battery(s).
RED LED is not on	If the RED LED Indicator light does not come on when you plug the BatteryMINDer Plus into an AC outlet, check that the outlet is switched on. If the light still does not come on, the BatteryMINDer Plus might have failed.
GREEN LED does not blink automatically, after battery has been on charge for a long while	If the GREEN LED indicator does not start blinking within 72 hours, the unit was not able to bring the battery to full charge. The unit is designed to automatically go into the maintenance mode when it reaches full voltage 14.4 volts. See pages 16 & 21 to correct.
I don't think that the BatteryMINDer Plus is working properly	The BatteryMINDer Plus will not start if the voltage in the battery is lower than 11 volts in a 12 volt battery. However, the LEDs (RED & GREEN) will still light. Test it on a known good battery. GREEN LED should start blinking after a short period of time. Test the battery with a digital voltmeter. It should read in the range of 13.6 – 14.4 volts DC when the BatteryMINDer Plus is running. Also, the unit will feel warm to the touch when it is working.

FAQs

1. How long does it take to go into the float (maintenance) mode with the flashing **GREEN** LED indicator?

A. It depends on the size, level of charge, amount of sulphation, and the temperature of the battery. It can take less then a minute, hours, days, or even a couple of weeks. A digital voltmeter connected to the battery will indicate the charging voltage. The voltage will keep increasing until over 14 volts then decrease to a lower voltage in the float (maintenance) mode, about 13.5V). The **GREEN** LED will flash.

2. I plugged the BatteryMINDer Plus into A.C. and can't measure any D.C. voltage coming out, is it broken.

A. The BatteryMINDer Plus will not output any D.C. unless connected to a battery that has at lest 11 volts.

3. If I keep the BatteryMINDer Plus connected to the battery, but disconnect from the A.C. power, will it drain my battery?

A. Yes it will.

4. What if I have an (A.C.) power failure, how will that affect the BatteryMINDer Plus?

A. The BatteryMINDer Plus will return to the same operating mode that it was in, when the A.C. power returns.

5. Can it be used with another charger at the same time? My motor home has a converter/charger for the house battery.

A. No, the BatteryMINDer Plus, can not be used with another charger. Keep the other charger disconnected. If it is "hard wired", then remove the output fuse from the converter/charger when using the BatteryMINDer Plus.

6. My motor home has several different types and size batteries; can I hook them together to maintain them?

A. Yes, they can all be maintained together. There is a procedure to follow: First, the BatteryMINDer Plus should be used on each battery individually until the float (maintenance) mode is reached. Then the batteries should be connected in parallel (positive to positive, negative to negative).

OUR GUARANTEE AND WARRANTY CONDITIONS

ONE (1) YEAR 100% UNCONDITIONAL MONEY BACK GUARANTEE

BatteryMINDer Plus® Model 12117 is guaranteed to perform as claimed, or we will refund your full purchase price including all taxes, shipping or handling cost applicable to the purchase. Unit must be returned with Proof of Purchase directly to VDC Electronics, Inc., not to the dealer from which it was purchased. Physical damage to the unit will limit this guarantee.

5-YEAR LIMITED WARRANTY

VDC Electronics, Inc. warrants this product for FIVE (5) years from date of purchase at retail against defective materials or workmanship. It will be repaired or replaced at no charge providing it is returned to VDC Electronics, Inc., freight prepaid together with Proof of Purchase. We make no warranty other than this limited warranty and expressly exclude any implied warranty including any warranty for consequential damages. (This limited warranty is not transferable.)

Allow up to ten (10) business days for repair or replacement plus shipping time.

FOR REPAIR OR REPLACEMENT

In the event that you believe your product may be defective, you MUST speak to a VDC Electronics technician at 1-800-379-5579 x206 (ET) before proceeding further.

If after speaking with our tech support personnel it is necessary to return the unit, you MUST request an RMA number.

All returns must be authorized by VDC Electronics.
Items must be returned within 10 days after receiving your **Return Merchandise Authorization** number and must be packed in the original packaging with manual and all connectors included. Go to our web site www.batteryminders.com > Service & Support > Warranty > Customer Return Merchandise Authorization Form and include the filled-out form with your product.
Your Return Merchandise Authorization number must be shown on the return shipping label as follows:

VDC Electronics, Inc.
Returns Department
Attn.: RMA # (Enter Your RMA# Here)
147 D Woodbury Rd.
Huntington, NY 11743

Note: If your questions relate to safety concerns, please contact: customersupport@vdcelectronics.com or if a potentially hazardous emergency may exist cease using the product immediately and call (800) 379-5579 ext. 208 (ET) Monday – Friday or contact our tech support at ext. 206. ***Standard operating questions, clearly answered in this manual, will not be answered by phone.***

Your Notes: